

REMARKS

1. In response to the Office Action mailed August 23, 2004, Applicants respectfully requests reconsideration. Claims 16-44 were last presented for examination. All claims were rejected in the outstanding Office Action. By the foregoing Amendments, claims 16 and 35 have been amended. No claims have been added or canceled. Thus, upon entry of this paper, claims 16-44 will remain pending in this application. Of these 29 claims, four (4) claims (claims 16, 26, 35 and 41) are independent.

2. Based on the above Amendments and following Remarks, Applicants respectfully request that all outstanding objections and rejections be reconsidered, and that they be withdrawn.

Art of Record

3. Applicants acknowledges receipt of form PTO-892 identifying references made of record by the Examiner.

Claim Objections

4. The Examiner objected to claims 16 and 35 due to the presence of certain informalities. Claims 16 and 35 have been amended to correct these informalities, thereby accommodating the objections. Reconsideration and withdrawal of these rejections is respectfully requested.

Claim Rejections Under 35 USC §103

5. Independent claims 16, 26, 35 and 41 and dependent claims 17-25, 27-35, 36-40 and 42-44 have been rejected under 35 U.S.C. §103(a) as being unpatentable over “Chapter 1: Low Cost 400Mhz Source Synchronous Data Links,” authored by Nickel of Silicon Graphics, 1995 (hereinafter “Nickel”) in view of U.S. Patent No. 6,026,051 to Keeth (hereinafter, “Keeth”). Based upon the following Remarks only, Applicants respectfully request reconsideration and withdrawal of these rejections.

6. Specifically, the Examiner asserts that Nickel teaches a source synchronous data link. The Examiner acknowledges, however, that “Nickel does not disclose that (a) the transmitter disclosed in Nickel is configured to halt the at least one data strobe signal in a selected logical

state in response to an external condition or (b) when the at least one data strobe signal is halted, the data signal is not clocked into the source synchronous receiver of Nikel.” The Examiner asserts that limitation (b) is inherent in Nikel and that limitation (a) is disclosed in Keeth. (See, Office Action, pg. 3.)

7. With regard to the latter contention regarding limitation (a), the Examiner asserts that Keeth discloses a differential data strobe transmitter for transmitting over a source synchronous communications link a differential strobe comprising a data strobe signal (DCLK0OUT) and an inverse data strobe signal (DCLK0OUT*) and strobe stopping logic configured to control signal level states used by said signal generator logic to cause said data strobe signal and said inverse data strobe signal to remain halted in a selected logical state. The Examiner relies on elements 36 and 44 depicted in Figure 3 of Keeth, as well as column 3, lines 45-51 and column 4, lines 49-65 of Keeth, in support of this contention.

8. Recognizing that Keeth discloses a differential data strobe receiver, the Examiner asserts that it would have been obvious to use such a configuration as a differential data strobe transmitter, and that it actually is a differential data strobe transmitter by virtue of the fact that the subject circuit “provides the differential clock signals to the remaining areas of the receiver.” (See, Office Action, pg. 4.)

9. Based on the above assertions regarding the teachings of Nikel and Keeth, the Examiner concludes that it would have been obvious to one of ordinary skill in the art at the time the invention was made to “utilize a differential data strobe transmitter as taught by Keeth in the link of Nikel because the strobes could be halted in a selected state to prevent the latching of data at the side of the receiver.” (See, Office Action, pg. 4.)

10. Applicants respectfully disagree for at least the following reasons. First, because the Examiner has relied on nothing more than Applicants’ own teachings to support the contention that it would have been obvious to combine the teachings of Nikel and Keeth, the Examiner has failed to establish a *prima facie* case of obviousness. Second, the combination of Nikel and Keeth, even if motivated by the prior art, would fail to contain all of the features of Applicants’ claimed invention unless substantial modifications were made to the resulting device. Each of these failures is addressed in detail below.

11. The suggestion or motivation asserted by the Examiner is essentially the same as that recited in Applicant’s claims. Applicant’s independent claim 16, for example, recites:

16. A source synchronous link comprising:

...
a source synchronous transmitter ... to transmit a data signal and at least one data strobe signal over said communication link, wherein said transmitter is configured to halt said at least one data strobe signal in a selected logical state in response to an external condition; and

a source synchronous receiver, coupled to said communication link, that clocks in said data signal in accordance with said at least one data strobe signal, wherein when said at least one data strobe signal is halted, said data signal is not clocked into said source synchronous receiver.”

(See, Applicants’ claim 16, above; emphasis added.)

Compare this with the motivation or suggestion asserted by the Examiner:

“ ... it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a differential data strobe transmitter as taught by Keeth in the link of Nikel because the strobes could be halted in a selected state to prevent the latching of data at the side of the receiver.”

(See, Office Action, pg. 4; emphasis added.)

12. The Examiner provides no reference to either Nikel, Keeth or other art of record in support of this motivation. In other words, rather than relying on evidence from the prior art, the Examiner provides nothing more than the Applicants’ own claim language, and indirectly, the stated purpose of Applicants’ invention as recited in Applicants’ specification, to provide support for the conclusion that it would have been obvious to combine the teachings of Nikel and Keeth.

13. Applicants respectfully assert that the Examiner must rely on the prior art to support the proposed combination; that is, the Examiner must provide evidence, whether in the form of some **teaching, suggestion, incentive or inference** in Nikel, Keeth or other art of record, or in the form of generally available knowledge, that one having ordinary skill in the art **would have been led to combine the relevant teachings** of Nikel and Keeth in the proposed manner. This burden to specify where such motivation is articulated in the art of record was clearly expressed by the Board in *Ex parte Levengood*, 28 U.S.P.Q.2d 1300 (P.T.O.B.A.&I. 1993):

“In order to establish a prima facie case of obviousness, it is necessary for the examiner to present evidence, preferably in the form of some teaching, suggestion, incentive or inference in the applied prior art, or in the form of generally available knowledge, that one having ordinary skill in the art would have been led to combine the relevant teachings of the applied references in the proposed manner to arrive at the claimed invention. Our reviewing courts have often advised the Patent and Trademark Office that it can satisfy the burden of establishing a prima facie case of obviousness only by showing some objective teaching in either the prior art, or knowledge generally available to one of ordinary skill in the art, that “would lead” that individual “to combine the relevant teachings of the references,”...Accordingly, an examiner cannot establish obviousness by locating the motivating force which would impel one skilled in the art to do what the patent applicant has done.”

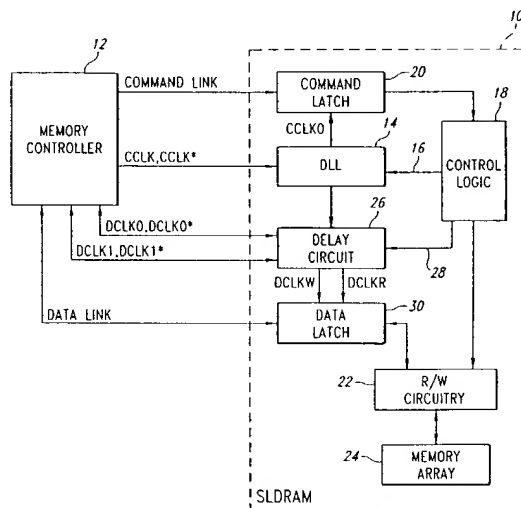
14. The Examiner has failed to properly specify the source of suggestion or motivation, and the proposed combination is not supported by the art of record. Accordingly, Applicants respectfully assert that the stated rationale for combining Nikel and Keeth in the proposed matter is an improper basis for supporting a rejection under Section 103. For this reason alone, Applicants respectfully request that the Examiner reconsider and withdraw this rejection.

15. As noted, a second reason why the Section 103 rejection of Applicants’ claims based on Nikel and Keeth is improper is because the combination of Nikel and Keeth, even if motivated by other than hindsight, would not contain all of the features of Applicants’ claimed invention. 16. From the perspective of the claimed invention, Nikel teaches nothing more than a convention source synchronous link. As admitted by the Examiner, Nikel fails to reasonably disclose a source synchronous link transmitter configured to halt data strobe signals in a selected logical state in response to an external condition; and also fails to reasonably disclose not clocking the data into a source synchronous receiver when the data strobe signals generated by the source synchronous transmitter are halted.

17. Keeth is directed to an input buffer such as a differential receiver that buffers differential inputs for semiconductor memories such as a Synchlink DRAM (SLDRAM). (See, Keeth, Abstract, col. 1, Ins. 20-24.) Much of the relevant portions of Keeth’s

differential amplifier is described with reference to Figure 1 of Keeth, which is reproduced below.

Figure 1 of Keeth



18. SDRAM 10 and memory controller 12 share write and read data via a bidirectional data link which is latched into or out of the SDRAM in response to one of two differential data clocks (DCLK,DCLK*) and (DCLK1,DCLK1*). The particular data clock in use at any given time is determined by command signals from memory controller 12. (See, Keeth, col. 1, lns. 26-46.) A differential receiver in

delay circuit 26 buffers differential clocks (DCLK,DCLK*) and (DCLK1,DCLK1*), generating a delayed write data clock DCLKW and a delayed read data clock DCLKR in response to control signals 28 from control logic 18 and one of the two data clocks selected by memory controller 12. Because data clock (DCLK,DCLK*) is operative intermittently, the differential receiver 34 outputs a zero state on its outputs (DCLKOUT,DCLKOUT*) (Figure 2) when data clock (DCLK1,DCLK1*) is the operative data clock. (See, Keeth, col. 1, ln. 47- col. 2. ln. 36.)

19. The Examiner asserts that Keeth discloses “a differential data strobe transmitter for transmitting over a source synchronous link a differential strobe comprising a data strobe signal, and inverse data strobe signal ...” Applicants disagree. Because Keeth’s differential receiver 34 exchanges the differential data clocks and data with memory controller 12, the source synchronous communication link in Keeth is the communication link between memory controller 12 and SDRAM 10.

20. However, the differential receiver 34 outputs which are controlled by Keeth’s differential receiver 34 are not the data strobe signal transmitted over the source synchronous link; rather, such outputs are used internally by SDRAM 10. (See, Keeth, col. 2, lns. 1-9.) This is acknowledged by the Examiner in the assertion that Keeth’s differential receiver may be considered to be a differential strobe transmitter: “the ‘differential strobe receiver’ of

Keeth can be considered a ‘differential strobe transmitter’ because it provides the differential clock signals to the remaining areas of the receiver.” (See, Office Action, pages 3 and 4; emphasis added.) However, if Keeth is to be considered a differential strobe transmitter when performing the operations associated with the generation of the differential clock signals (DCLKOUT, DCLKOUT* in Figure 3, and DCLKR and DCLKW in Figure 1 of Keeth), then such differential clock signals must be transmitted over a source synchronous communication link; that is, the communication link between memory controller 12 and delay circuit 26. Because this is not the case, Applicants respectfully assert that Keeth’s differential receiver 34 fails to disclose a source synchronous transmitter as recited in Applicants’ claim 16.

21. The Examiner also asserts that Keeth discloses “strobe stopping logic ... configured to control signal level states used by said signal generator logic to cause said data strobe signal and said inverse data strobe signal to remain halted in a selected logical state.” Applicants respectfully disagree. The state of Keeth’s data signals are not halted in a selected state; rather the data signals are halted such that DCLKOUT is always in a logic low state and DCLKOUT* is always in a logic high state. (See, Keeth, col. 3, ln. 46 – col. 4, ln. 66.) Thus, in contrast to Applicants’ claimed invention, Keeth discloses a differential receiver that “outputs a “0” state on its outputs DCLKOUT, DCLKOUT* which is thereafter utilized internally to the SLDRAM 10.

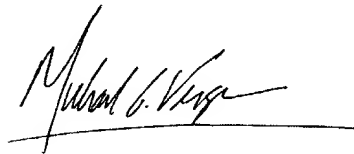
22. For at least the above reasons, Applicants respectfully assert that the combination of Nikel and Keeth fails to contain all of the elements of Applicants’ invention as recited in independent claim 16. Accordingly, Applicants respectfully assert that the Section 103 rejection of claim 16 based on Nikel and Keeth is improper and should be withdrawn.

23. Applicants also assert that independent claims 26 and 35, and the dependent claims which depend directly or indirectly from independent claims 16, 29 and 35 are patentable for at least the same reasons as those noted above.

Conclusion

24. In view of the foregoing, this application should be in condition for allowance. A notice to this effect is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Michael G. Verga", is written over a horizontal line.

Michael G. Verga
Reg. No. 39,410
Tel. (703) 563-2005

November 23, 2004